Technical Study 1
WHAT IS A FULL EMPLOYMENT
GOAL IN THE 1980s?
Orley Ashenfelter
July 1981

BOUR MARKET DEVELOPMENT TASK FORCE
TECHNICAL STUDIES SERIES

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for the Task Force on Labour Market Development. The
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ABSTRACT

WHAT IS THE FULL EMPLOYMENT GOAL IN THE 1980S?

Orley Ashenfelter

The last decade has witnessed the almost complete
disintegration of the once powerful consensus that
governments should and could maintain full employment. In
retrospect, what was remarkable about this consensus was not
the agreement that governments should strive for the
elimination of unemployment, but the wide agreement that
governments could costlessly achieve this objective. During
the 1950s and 1960s it became agreed that there was a cost to
permanently reduced unemployment in the form of higher
inflation. The consensus on government policy continued,
however, because a permanently lower unemployment rate seemed
worth this cost, although now the terms of the trade -- known
as the Phillips Curve -- had at least to be considered. The
final weakening of the consensus arrived as a result of the
1970s, when economists and government officials everywhere
were finally convinced by the coexistence of high inflation
and unemployment that continuing to maintain lower
unemployment rates would require continous acceleration in
the rate of inflation. Since this is considered too high a
price to pay, government officials feel hamstrung. On the
one hand, the public is convinced that the government should
resolve the problem of unemployment, while government
officials are convinced that they are unable to do so without
facing unacceptable costs in the form of accelerating
inflation.

These changes raise dramatic and difficult questions for
the future of government policies and pronouncements
regarding full employment. There are three distinct, but
related, issues that bear on what the stated goal of
government employment policies might be. First, one might

consider basing the goal of full employment on a measured level of unemployment such that the unemployment that remains can be considered voluntary rather than involuntary. One purpose of this paper is to show that an appealing definition of involuntary unemployment does exist, but that once this definition is understood it does not lead to a compelling argument for its reduction or elimination. Since the purpose of defining a full employment goal is to focus attention on the elimination of unemployment, there is a clear drawback to the use of this method.

A second possibility is to base a goal of full employment on the measured hardship of unemployment. Under this method unemployment is of more concern when it results in more hardship. Presumably this is more likely to be the case the less fully is the unemployed worker's income cushioned during a spell of unemployment, and the poorer are the alternative uses of the unemployed worker's time. This puts a premium on measuring the income losses of unemployment and determining whether these are concentrated among groups whose welfare is dramatically affected by these losses. Unemployment rates for some groups then take on more importance than for other groups because the unemployment of the former signifies more hardship than that of the latter.

A third possibility is to base a goal of full employment on what can be accomplished without producing an unacceptable effect on price inflation. One scheme is to define full employment as that rate of unemployment where the price inflation rate remains steady and neither accelerates or decelerates. The unemployment rate consistent with non-accelerating inflation has been called the "natural rate

of unemployment." This definition of full employment implies that the proper role for government policy is to acknowledge the desirability of a steady non-accelerating inflation rate, even though there are other possibilities. The primary advantage of this definition is that it focuses attention on what remains in the realm of the feasible. The main disadvantage is that there is no reason to suppose that the natural rate of unemployment, so defined, coincides either with unemployment that is entirely voluntary or unemployment that is associated with minimal hardship. Many economists argue that the explanation of why these concepts do not coincide is the great unsolved problem of modern economics.

The paper discusses each of these issues. The basic idea is to spell out what is known about each criterion for defining a full employment goal and how economic analysis has been used to shed light on each. The objective is to show how the consensus full employment goal of the 1940s could be justified on all three criteria, and how this consensus has disintegrated because each criterion now seems to call for a different full employment objective. The paper concludes with a discussion of how some compromise among these criteria might be struck in the interest of defining a full employment goal for the 1980s.

SOMMAIRE

QUEL EST L'OBJECTIF DE PLEIN EMPLOI
POUR LES ANNÉES 1980?

Orley Ashenfelter

La dernière décennie a été le témoin de la disparition
presque complète du consensus jadis bien ancré voulant que le
gouvernement devait et pouvait maintenir le plein emploi. En
rétrospective, ce qui était remarquable au sujet de ce
consensus, ce n'était pas que l'on s'entende pour dire que les
gouvernements devraient s'efforcer d'éliminer le chômage, mais
qu'il soit largement admis qu'ils pouvaient, sans frais,
atteindre cet objectif. Au cours des années 1950 et 1960, on a
reconnu qu'un chômage constamment réduit entraînait des coûts se
traduisant par un taux d'inflation plus élevé. Le consensus
relatif à la politique de l'État s'est toutefois maintenu (même
si les termes de l'équation communément appelé la courbe de
Phillips devaient au moins être examinés) parce qu'il semblait
valoir la peine de payer ce prix pour maintenir un faible taux
de chômage. Ce sont les années 1970 qui ont donné le coup de
grâce à ce consensus, tous les économistes et technocrates étant
finalement convaincus, par la coexistence d'une inflation et
d'un chômage élevés, que le maintien d'un taux de chômage faible
provoquerait une accélération constante du taux d'inflation.
Puisque l'on considère partout que l'inflation galopante est un
prix trop élevé à payer, les technocrates sont pris de court.
D'une part, le public est persuadé que le gouvernement devrait
résoudre le problème du chômage, tandis que, d'autre part, les
technocrates sont convaincus qu'ils en sont incapables sans
attiser l'inflation, ce qui représente des coûts inacceptables.

Tous ces changements présentent d'épineuses et difficiles
questions pour l'avenir d'une politique gouvernementale
concernant le plein emploi. En réalité, trois facteurs

What is a Full Employment Goal in the 1980's?[*]

Orley Ashenfelter
Princeton University

The last decade has witnessed the almost complete disintegration of the once powerful consensus that governments should and could maintain full employment. The symbols of this consensus had emerged in the late 1940's as government "White Papers" in Canada and the United Kingdom and as the Employment Act of 1946 in the United States, but the disintegration is only now being recognized. In retrospect, what was remarkable about this consensus was not the agreement that governments should strive for the elimination of unemployment, but the wide agreement that governments could costlessly achieve this objective. During the 1950's and 1960's it became agreed that there was a cost to permanently reduced unemployment in the form of higher price inflation rates. The consensus on government policy continued, however, because a permanently lower unemployment rate seemed worth this cost, although now the terms of the trade -- known widely as the Phillips Curve -- had at least to be considered. The final weakening of the consensus has arrived as a result of the 1970's, when economists and government officials everywhere were finally convinced by the coexistence of high inflation and unemployment that maintaining continued lower unemployment rates would require a continuous acceleration in the rate of inflation. Since accelerating inflation is a price everywhere considered too much to pay, government officials feel hamstrung. On the one hand, the public is convinced that the government should resolve the problem of unemployment, while government officials are convinced they are unable to do so without facing unacceptable costs in the form of accelerating inflation.

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[*] Written for presentation in the findings of the Labour Market Development Task Force, Ottawa, Canada. The views expressed herein are entirely the author's.

Thus, the analysts' consensus that governments could costlessly maintain full employment has nearly disappeared, but the public's expectations have not changed so rapidly. This puts inevitable pressure onto the political fabric and has caused an indirect confrontation over the consensus that governments "should" maintain full employment. The basis for this latter consensus was nothing more than the agreement that most unemployment was involuntary. Since the hardship of unemployment is well known, its involuntary nature commanded immediate agreement that governments should do whatever was possible to eliminate it. To the extent that the consensus that governments should maintain full employment continues to exist, the breakdown in the consensus that general aggregative government policies can maintain full employment merely leads to pressure for the adoption of specific policies such as import tariffs, indirect employment subsidies, and the like to accomplish the agreed upon goal in the only effective way possible. Of course, the sum of these specific policies is perhaps nothing more than a policy already agreed to be ineffective in the aggregate, but its political appeal to individual groups remains strong. In the meanwhile, the cumulative sum of these specific policies can act as a serious form of inefficiency to the economy long after their employment creating potential has been exhausted.

All of these changes raise dramatic and difficult questions for the future of government policies and pronouncements regarding full employment. Accepting the view that government aggregative monetary and fiscal policies are going to have a relatively modest effect on unemployment raises a cruel dilemma. On the one hand, the consensus that government should take the responsibility to limit the extent and the hardship of unemployment could lead

to the advocacy of specific policies that will continue to subsidize the lame ducks and declining industries or areas for the sake of today's employment at the expense of tomorrow's efficiency and production. Alternatively, the consensus that government should take the responsibility for ensuring full employment can be denied and these specific inefficiencies avoided. Since this latter consensus is based on the view that most unemployment is involuntary and causes great hardship, attacking this consensus amounts to denying either the presence or the hardship of involuntary unemployment, or both. Neither of these choices is very attractive to any government, so it is no surprise that compromises must be struck regarding announced policies toward unemployment in the labor market.

The discussion of these compromise positions has contained a mixture of fact and analysis that, in my view, tends to confuse rather than clarify the issue. There are really three distinct, but related issues that bear on what the stated goal of government employment policies might be. First, one might consider basing the goal of full employment on a measured level of unemployment such that the unemployment that remains can be considered voluntary rather than involuntary. Doing this puts a premium on defining and measuring the extent of involuntary unemployment. To the extent this can be done, the result is a superficially appealing definition of full employment that focuses on the elimination of waste while at the same time it eliminates hardship. One purpose of this paper is to show that an appealing definition of involuntary unemployment does exist, but that once this definition is understood it does not lead to a compelling argument for its reduction or elimination. Since the purpose of defining a full employment goal is to focus attention on the elimination

of unemployment, this suggests a clear drawback to the use of this method for its definition.

A second possibility is to base a goal of full employment on the measured hardship of unemployment. Under this method unemployment is of more concern when it results in more hardship. Presumably this is the more likely to be the case the less fully is the unemployed worker's income cushioned during a spell of unemployment and the poorer are the alternative uses of the unemployed worker's time. This puts a premium on measuring the income losses of unemployment and determining whether these are concentrated among groups whose welfare is dramatically affected by these losses. Unemployment rates for some groups then take on more importance than unemployment rates for other groups because the unemployment of the former signifies more hardship than does that of the latter. The major drawback to this way of defining full employment is that the hardship of unemployed workers must be gauged and there will rarely be widespread agreement on how to do this or for which groups a given income loss is the more severe hardship. Nevertheless, bringing to bear an explicit discussion of the hardship of unemployment serves to recognize that times have changed, and that the implied wasted resource that is unemployment has a far more complicated impact on worker welfare than is commonly associated with the simple hardship of the Great Depression of the 1930's.

A third possibility is to base a goal of full employment on what can be accomplished without producing an unacceptable effect on price inflation. One scheme is to define full employment as that rate of unemployment where the price inflation rate remains steady and neither accelerates or decelerates. The un-employment rate consistent with non-accelerating inflation has sometimes been

called the "natural rate of unemployment." Using this definition of full
employment implies that the proper role for government policy is to acknow-
ledge the desirability of a steady non-accelerating inflation rate, even though
there are other possibilities. The primary advantage of this definition of
full employment is that it focuses attention on what remains in the realm of
the feasible. Promising more from aggregative monetary and fiscal policies
than moves to counter unemployment when its rate is above or below the natural
rate risks the generally unacceptable result of accelerating inflation. The
main disadvantage of this method is that there is no reason to suppose that
the natural rate of unemployment so defined coincides either with unemploy-
ment that is entirely voluntary or unemployment that is associated with
minimal hardship. Many economists argue that explaining why these concepts do not
coincide is the great unsolved problem of modern economics.

The remainder of the paper is divided into a detailed discussion of each
of these issues. The basic idea is to spell out what is known about each cri-
terion for defining a full employment goal and how economic analysis has been
used to shed light on each. The objective is to show how the consensus full
employment goal of the 1940's could be justified on all three criteria, and how
this consensus has disintegrated because each criterion now seems to call for
a different full employment objective. The concluding section of the paper
contains a discussion of how some compromise among these criteria might be
struck in the interest of defining a full employment goal for the 1980's.

The Nature of Involuntary Unemployment

In order to examine the nature of involuntary unemployment it is easiest
to begin by setting out a stylized description of how a fully employed worker
is presumed to make economic choices. The basic building blocks in this

description are the individual consumer-worker's preferences between non-market time[1] and conventional commodities, on the one hand, and the constraints on his earning and buying power that are imposed by the wage rate and prices he faces, on the other. As to preferences, it is surely true that most consumer-workers would prefer more of both commodities and non-market time, but with a given wage rate and prices more of one may only be had by taking less of the other. After all, additional earnings to buy a larger commodity bundle must come at the expense of a lower consumption of non-market time, and vice versa. The basic problem for the consumer-worker is therefore to resolve this conflict and find that combination of non-market time and commodity purchases that is the most satisfying of all possible combinations. Presumably the identical individual facing a different regime of wages and prices might choose a differ-ent combination of non-market time and commodities, while different individuals facing the same wage and prices might also choose a different combination of non-market time and commodities. The detailed study and empirical measurement of the former makes up the core of a large set of studies in economics.

Implicit in this conventional discussion of the problem of choice for an individual consumer-worker are two important assumptions. First, it is assumed that individuals may purchase all of any consumer goods that they can pay for at a known set of prices, so that there is no rationing of commodities. Second, it is assumed that individuals may work as many hours as they wish at a known wage rate. Suppose now that this latter assumption is false and that there is some upper limit (perhaps zero) on the number of hours that a

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[1] Leisure, as conventionally defined, is only one(perhaps small)part of the time spent out of the labor market. The term non-market time should make it abundantly clear that no normative significance is attached to the use of this time and that it certainly does not preclude what in conventional terms many would prefer to call work-at-home.

consumer-worker can sell to his employer or to any other employers he can find.
A worker is then defined as involuntarily unemployed if the number of hours he
would otherwise choose to sell is greater than the number of hours that he can
sell. By this definition, a worker who is involuntarily unemployed is forced
to consume more non-market time than he would prefer and, consequently, a smaller
bundle of commodities. Alternatively, a worker who is involuntarily unemployed
cannot work as much as he would prefer and thus cannot purchase as large a bundle
of commodities as he would prefer.

There are two remarks that should be made about this definition of in-
voluntary unemployment. First, it is always possible to argue that if the
worker perceives a binding constraint on the hours he may work for what has
been the "customary" wage rate, then this wage rate has been misperceived.
Thus, it is sometimes argued that workers would not perceive themselves as
unemployed if they would look for work at lower wage rates; while others
sometimes argue in response that there is no work available at any wage rate.
My own view is that, in common language, a worker is viewed as unemployed by
the community if he is perceived as identical to other workers with respect
to preferences and skills and yet is unable to find the number of hours of
work that others have both chosen and managed to find. Thus, it is the
inherent inequality of the constraints on choice implied by the presence of
unemployment that defines it, and, in my opinion, what makes it seem so
socially unacceptable. From the unemployed worker posed the question, "Why
don't you accept the work available at lower wage rates?" I should expect to
hear the question, "Why don't all other similarly situated workers have to do
the same?" It is this constraint on choice perceived by the otherwise seemingly
identical worker that defines his unemployment.

Second, this concept of involuntary unemployment is essentially normative and its implementation requires implicit interpersonal comparisons. It is surprising that many economists would deny that the measurement of unemployment through household surveys, as in Canada and the U.S., is essentially a normative process. The definition of involuntary unemployment requires that a worker be unable to obtain the same amount of work as another worker with (1) the same preferences between leisure and consumption and (2) the same endowment of skills. In practice, however, measured unemployment is simply a tally of the number of workers without work who are looking for it. There is nothing that guarantees that workers reported as unemployed are indeed identical to other workers who have obtained work. This is why those who maintain that unemployment is involuntary typically also maintain that unemployed workers are otherwise no different than fully employed workers. To these individuals unemployment is capricious bad fortune for the unemployed and could as easily have affected anyone. If this view is accepted, it is little wonder that unemployment is seen as so politically unacceptable to so wide a group of individuals. Those who are employed could just as easily have been among the unemployed and can clearly see the injustice of the plight of the latter. Moreover, unemployment is a clear waste of resources and, so long as its elimination is costless, arguments against attempts to eliminate it seem ludicrous and heartless.

On the other hand, those who maintain that unemployment is voluntary typically also maintain that unemployed workers are different than fully employed workers, either because they have stronger preferences for leisure than do fully employed workers or because they have fewer marketable skills

than do fully employed workers. It is hardly surprising that individuals who accept this view of unemployed workers have little sympathy for the compensation of the hardship of unemployed workers and argue that without such compensation most unemployment would disappear.

These arguments about the nature of unemployed workers are rarely, if ever, settled by an appeal to empirical analysis. They are typically used to magnify or belittle the importance of the presence of unemployment and so to urge support for or against some government action. The crux of these arguments seems to be that evidence of the mere presence of involuntary unemployment ought automatically to command support for virtually any government action that preserves specific employment opportunities in the short run, regardless of its longer run impact. Much of the research on the labor market in the last decade has re-established the view that the mere presence of unemployment does not, by itself, suggest that any simple policies will permanently reduce it. For the definition of involuntary unemployment does not specify the cause of the constraint on choice that it represents and does not, therefore, imply any remedy for its removal. Indeed, understanding the cause of such constraints and the extent to which they exist is a major and unresolved problem for research. Before turning to a discussion of this research, it will be useful to recount in broad summary the evidence that bears directly on whether unemployed workers behave as if involuntarily unemployed so that the quantitative importance of these models for our understanding of the labor market may be highlighted.

Measuring the Extent to Which Unemployment is Involuntary

Methods to determine whether measured unemployment represents a constraint on choice must ultimately be based on a comparison of the behavior of consumer-

workers who are reported as unemployed against what their behavior would have been expected to be if unemployment were not a constraint on choice. In general, the behavior of consumer-workers who face a constraint on the hours they may work in the labor market in any year will differ both with respect to the amount of time they work and with respect to the pattern of their demands for commodities over the year. Thus, one may look both to comparisons of the hours worked by unemployed workers as against what they would have been expected to work given the wage rate they face, and to comparisons of the patterns of their consumption against what otherwise would have been expected.

One strategy is to study the determinants of the hours of employme. of those workers who are not measured as unemployed in a given year and then see whether differences in these determinants, apart from measured unemployment, can explain the employment of those workers who are measured as unemployed. The basic idea is that if measured unemployment is involuntary and a part of the offer to sell labor, and if all of the determinants of labor supply are held constant, then we should observe a negative one-to-one relationship between hours worked and the presence of a spell of unemployment. Alternatively, if unemployment is voluntary and part of the demand for leisure, and if all of the determinants of labor supply are held constant, then we should observe no relationship between hours worked and the presence of a spell of unemployment. Another way to put this is to say that unemployed hours should behave as a distinctly separate state of behavior from the mere total of non-market time if unemployment hours are something other than simply another form of leisure.

Two kinds of evidence may be brought to bear on this issue.
The first is time-series data on movements of employment and unemployment. Since the sum of employment and unemployment is the labor force,
the "unemployment is involuntary" hypothesis implies that labor force rates
should be independent of unemployment rates when labor supply variables
are held constant. The evidence on this issue for male workers is overwhelming: labor force rates are essentially independent of unemployment
rates.[2/] For female and younger workers, however, labor force rates tend
to be negatively correlated with unemployment rates. Instead of labor supply
and unemployment moving together, as would be implied by the hypothesis that
unemployment is voluntary, precisely the contrary appears to be the case.
All of this provides little evidence that unemployment behaves as if it were
simply another form of leisure.

There are a number of reasonable objections to this simple time-series
evidence that raise questions about its interpretation. The most important
is the objection that the simplistic models used to date do not properly
account for all of the time-varying movements in the determinants of labor
supply. Although this objection can never be entirely rejected, one important
aspect of it has been tested. In particular, in some models[3/] an important
determinant of short run movements in labor supply is movements in current
wage rates relative to anticipated future wage rates. In fact, it is now
well documented that the time-series of real wage rates observed in North
America is simply too smooth and regular to be consistent with cyclical

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[2/] See Bowen and Finegan [4], for example.
[3/] See, in particular, Lucas and Rapping [5].

movements in real wage rates.[4/] In sum, the time-series evidence seems
to strongly support the notion that unemployment is primarily a part of
the offer to sell labor services.

Longitudinal data have also been used to study this problem.[5/] Here
individual workers are followed through time to see whether spells of unem-
ployment correspond to periods of shorter hours worked per-year. The
advantage of such data is that individual worker labor supply characteristics
may be more carefully controlled and differences among workers are not the
source of the unemployment differences being studied. These data also provide
strong evidence that unemployment time is a part of the offer to sell labor.
Spells of unemployment within male life cycles are negatively correlated with
hours worked, which, unless unmeasured determinants of labor supply are to
account for it, suggests that unemployed hours are a part of labor supplied.

It is a key fact of the modern labor market that the percentage of
persons in the labor force who say they would like to work but do not have
jobs varies cyclically and in a strong negative relationship with movements
in employment. The notion that these movements in unemployment are mainly
involuntary is nothing more than the statement that to date no known time-
series movements in the determinants of labor supply can explain these cyclical
movements in unemployment. With this evidence as background it is natural
to ask what guidance this information provides in the determination of a full
employment goal.

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[4/] See particularly Altonji and Ashenfelter [1].

[5/] See Ashenfelter and Ham [3].

The Causes of Involuntary Unemployment

Discussions of involuntary unemployment have been carried out by economists at least since Adam Smith.[6] A venerable part of this discussion is the role of demand side constraints that result from discontinuities in technology. It is commonly accepted that farmers will have less work in winter than summer even though there is little reason to think this is their preferred state of existence. Likewise, construction workers are expected to work more when the weather is good than when it is bad although this, too, seems unlikely to be the result of worker preferences. It is also commonly recognized that construction workers may, as a consequence, average fewer hours per year than workers in other industries.

According to the definition set out above the workers in these demand-constrained occupations sometimes suffer involuntary unemployment. It seems unlikely that the workers who choose these occupations are unaware that this phenomenon will occur, however, at the time their choice is made. It will

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[6] Smith's description of jobs with considerable unemployment makes it clear that he expected private markets to compensate workers for having to endure it: "Thirdly, the wages of labour in different occupations vary with the constancy or inconstancy of employment. Employment is much more constant in some trades than in others. In the greater part of manufactures, a journeyman may be pretty sure of employment almost every day in the year that he is able to work. A mason or bricklayer, on the contrary, can work neither in hard frost nor in foul weather, and his employment at all other times depends on the occasional calls of his customers. He is liable, in consequence, to be frequently without any. What he earns, therefore, while he is employed, must not only maintain him while he is idle, but make him some compensation for those anxious and desponding moments which the thought of so precarious a situation must sometimes occasion. (Adam Smith, [7]).

therefore generally be necessary for employers to offer a higher wage for those
hours that are worked in such industries than would otherwise be the case.
Workers in these industries do nevertheless continually face periods of in-
voluntary unemployment as defined above because, at their current wage rate,
these workers will always prefer to work longer hours than they can generally
obtain. Moreover, these workers will correctly show up in a labor market survey
as involuntarily unemployed. Still, these workers suffer no lifetime loss of
welfare compared to workers in other industries because their involuntary
unemployment has been fully compensated by a wage advantage for those hours
actually worked. The cause of their unemployment is technological, and there
is probably no measure that government could or should take that would eliminate
all involuntary unemployment in such industries or occupations.

This kind of employer-employee relationship is an example of what has
come to be called an implicit labor contract. In the last decade economists
have begun to recognize that employer-employee relationships often last for a
long period of time and that custom and past practice play a large role in this
kind of relationship. Such customs and practices that at first appear inex-
plicable by conventional economic analysis sometimes yield successfully to
such analyses when the long-term nature of the relationship is recognized. In
some cases, therefore, it may turn out that the socially efficient implicit
labor contract will call for involuntary unemployment under some conditions.

The seeming paradox is that the presence of involuntary unemployment
is usually taken to imply that there remain unexploited and mutually profitable
gains from trade between employers and employees. The paradox is resolved by
recognizing that employees may voluntarily enter long term relationships with
employers that occasionally call for spells of involuntary unemployment. Seen

as a long term commitment these spells of involuntary unemployment are voluntarily agreed to, but it remains true that when they happen workers who suffer them are worse off than they would be had they not happened. There is thus no contradiction when, even in good years, construction workers complain of their unemployment, but never seek to escape the industry where one must expect this to occur.

The upshot of this discussion is that the mere presence of involuntary unemployment does not immediately imply that governmental actions should be taken to reduce it. Put in more familiar terms, the presence of involuntary unemployment at a point in time does not necessarily imply the existence of a market failure. The reason for this is that the definition of involuntary unemployment does not specify the cause of the constraint on choice that it represents. It is unquestionably true that the removal of these constraints on choice would be desirable, but this says no more than that construction workers and farmers are made happier by moderate winters. The modern study of labor markets thus teaches us that merely recognizing the existence of involuntary unemployment does not compel one to favor the indiscriminate adoption of a wide range of potentially distortionary and ineffective government programs. When the unemployment comes from the demand side of the labor market, its cause must be clearly specified and documented before cost effective remedies can be prescribed or designed. This also implies that if the purpose of a full employment goal is to focus attention on government actions to eliminate unemployment, a measure of the extent of involuntary unemployment may not be a satisfactory basis for such a goal. The difficulty is that the presence of involuntary unemployment may not be a sign of market failure and may not call for any government action at all. Adopting as a goal the elimination of all involuntary unemployment may thus lead to policies that in the long run are inefficient and that inhibit the growth of productivity.

What Is the Hardship of Involuntary Unemployment?

The worker who suffers a spell of involuntary unemployment will generally suffer a loss of welfare compared to an otherwise identical worker. It is natural to inquire as to how great this hardship will be in monetary terms. One way to do this is to consider the amount of unemployment compensation that would be required to restore the unemployed worker to the level of satisfaction of the otherwise identical fully employed worker. At first it might be thought that this unemployment compensation should simply equal the income lost as a result of unemployment. In the absence of any psychic or other burdens of unemployment, however, the required unemployment compensation will clearly differ from this earnings loss due to unemployment because of the additional non-market time available to the unemployed consumer-worker. To see this one need merely observe that an unemployed worker compensated by the full amount of his earnings loss would have command of the same bundle of consumption goods as the fully employed worker and a greater command of non-market time. Thus, a full restoration of lost earnings would over-compensate the unemployed worker. Only in the very unlikely case where non-market time is of no value to individual consumer-workers would the full restoration of lost earnings be either desirable or equitable.

It is for this reason that so much attention is focused on the earnings replacement rate in unemployment compensation systems. When earnings replacement ratios approach unity unemployment compensation systems become suspect. On the one hand, such systems seem inequitable because the workers receiving benefits appear to be better off than those who are working. On the other hand, there is a natural fear that in such systems the incentive to return to work is weakened.

More generally, it is straightforward to show that if the goal is to make an unemployed worker as well off as a fully employed worker the exactly compensating fraction of lost earnings that unemployment benefits should replace must depend both on the strength of the consumer-worker's preferences for non-market time and the length of his spell of unemployment.[1]   Where work attachment is great, the required unemployment compensation will be relatively high, but where the contrary is the case it may be very low. Likewise, short spells of unemployment where the enforced consumption of non-market time may be put to good use, either as leisure or in homework, will require relatively smaller compensation than long spells of unemployment where this will not be possible.

This discussion draws attention to how a measure of the hardship of unemployment might be constructed if no unemployment compensation system existed. The longer-term unemployed would weigh more heavily in such a measure than the short-term unemployed, and those with good uses of their non-market time would weigh less heavily than those with poor uses of their non-market time. Younger workers, who can profitably spend their non-market time in school, might be an example of the former, while adult male heads of household might be an example of the latter. The difficulty, of course, is that the labor force today consists of a heterogeneous group of workers whose non-market alternatives are equally heterogeneous. When the unemployment goals of thirty years ago were arrived at this heterogeneity did not exist. The adult male head of household was the typical worker, so that movements in aggregate unemployment rates always had clear implications for the hardship of the workers suffering unemployment.

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[1]See Ashenfelter [2].

Recognizing the heterogeneity of the hardship imposed by unemployment today is as much a political as an economic problem.

A second problem is that attention has thus far been drawn to the measure ment of the hardship of unemployment that would exist if there were no unemploy ment compensation. This is not the actual hardship of unemployment because unemployment compensation does exist. An alternative measurement scheme would focus on the hardship of unemployment that is not compensated by existing private or government mechanisms. It is remarkable that so little is known about the actual welfare of unemployed workers after due allowance is made for the private and public cushions to the incomes of such workers. A natural first step in the construction of such measures of the hardship of unemployment would be regular collection of data through the household survey on the income received by unemployed workers.

Finally, it must be recognized that like most policies designed to alleviate hardship, unemployment benefits designed to compensate for involun tary unemployment may produce incentives to engage in the activity that is compensated. In the case where it is a governmental policy to uniformly re place a fixed fraction of lost earnings due to unemployment I have already implied that short spells of unemployment may be over-compensated and that the unemployment of workers with weak attachment to the labor force may be over compensated. In both cases, moreover, there will be little incentive apart from stigma or work tests for an unemployed worker whose unemployment is over-compen sated to accept employment when it is offered. This point may seem obvious when it is government policy to replace 100 percent of lost earnings due to unemployment, but it may be equally valid when this earnings replacement is less than 100 percent.

The upshot of this discussion is that by now the measured number of unemployed workers is only a poor indicator of the aggregate hardship of unemployment. On the one hand, the labor force is far more heterogeneous than was the case when the current measurement methods were agreed upon during the Great Depression of the 1930's. Likewise, dramatic changes in the private and public arrangements for the compensation of the hardship of unemployment have converted the unemployment rate into a measure that may be only weakly related to the actual uncompensated hardship of unemployment. Basing a full employment goal on the hardship indicated by the measured amount of involuntary unemployment is not very appealing because so little is known about whether and to what extent measured unemployment does indicate real hardship.

Inflation and Unemployment

The recent history of the disintegration of the concensus over the relationship between price inflation and unemployment in Canada can be read from the data plotted in Figure 1. It is interesting to consider how this figure would have looked to an observer in 1970. This is simple enough to do since all of the inflation-unemployment combinations since that year lie in the upper right-hand half of the diagram. Observing this diagram in 1970 would thus have suggested a relatively flat and downward sloping relationship between inflation and unemployment (the "Phillips Curve") and certainly would have led to poor predictions of the experience in the decade to follow. Figure 2 contains the same data for the same years for the U.S. Although the inflation-unemployment combinations are hardly identical, the same conclusions seem justified. The relationship between price inflation and unemployment prior to 1971 in the U.S. seems relatively flat, downward sloping, and would have been a poor predictor of the experience of the 1970's.

Figure 1

Canadian Price Inflation

Canadian Unemployment

3.350   3.764   4.279   4.794   5.309   5.824   6.339   6.855   7.370   7.885   8.400
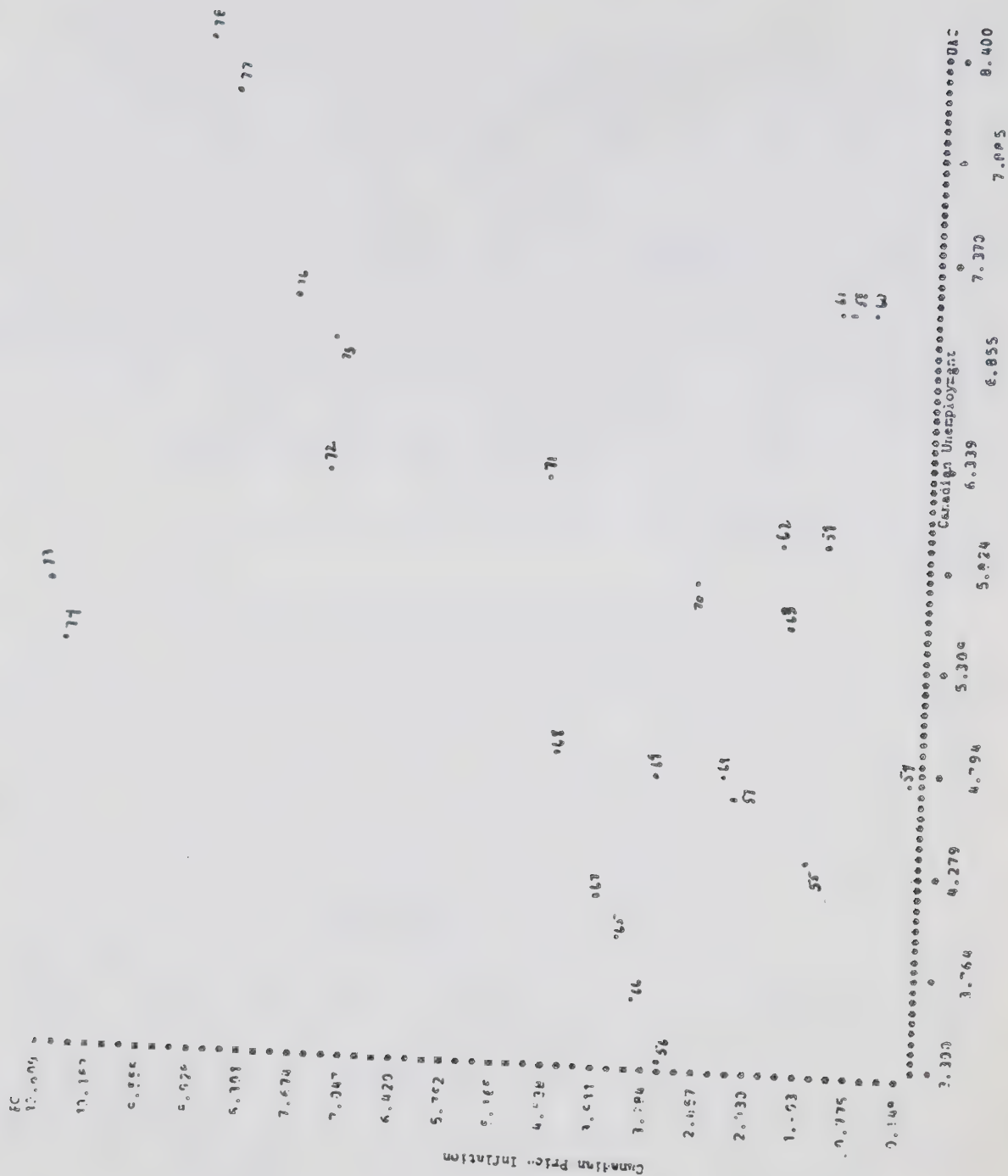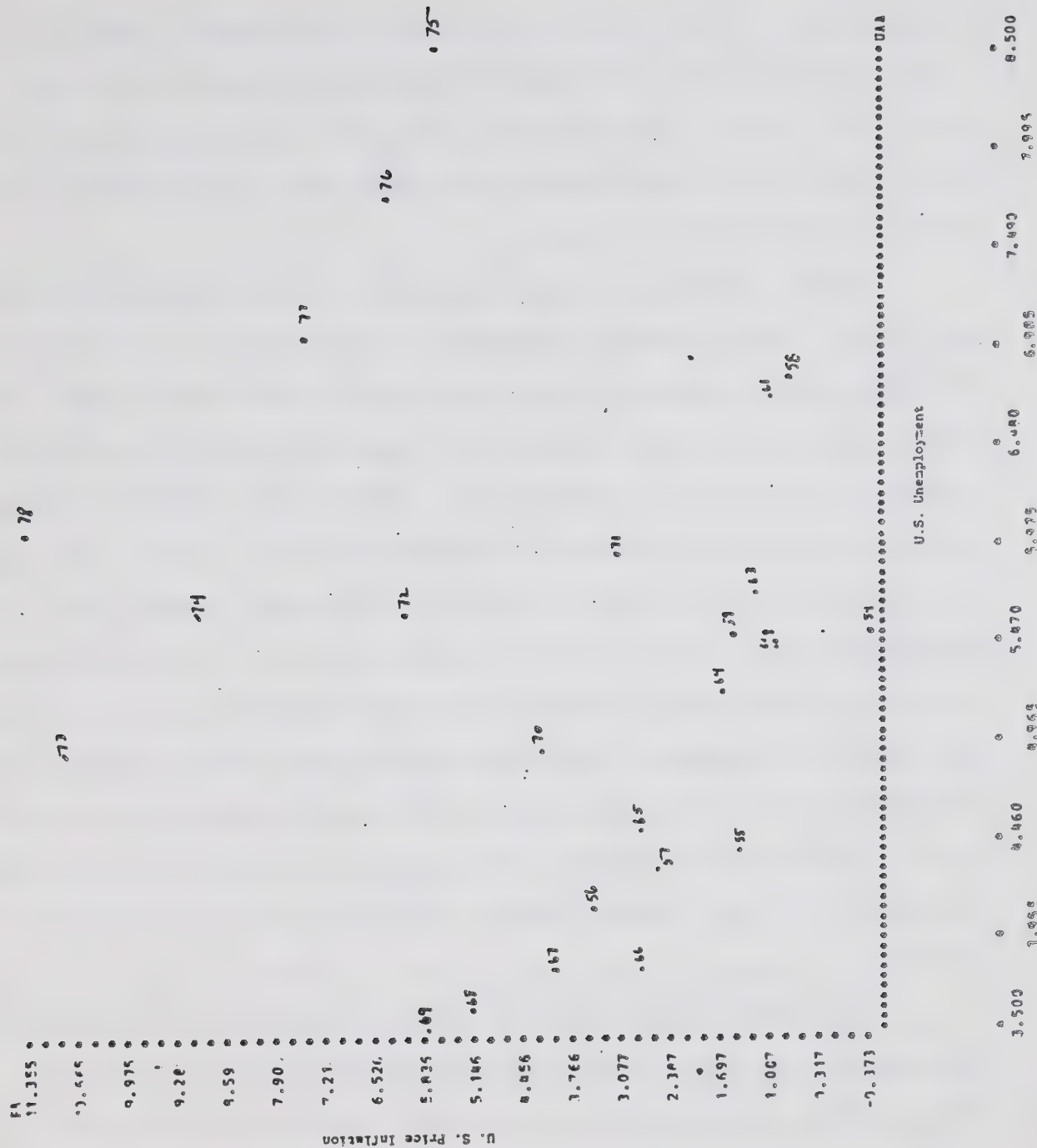
Figure 2

Taken together, the data for the full period 1954-78 actually seems to suggest

a slight positive relationship between inflation and unemployment in both coun-

tries, but, in fact, a more systematic statistical investigation in the appendix

reveals little or no relationship between unemployment and inflation in either

country over the full 1954-78 period.

The now conventional argument advanced by Milton Friedman over a decade

ago is that these diagrams are confounded by the movements in expected or an-

ticipated inflation rates that have taken place in both countries over this

period. According to these arguments it is unanticipated inflation that is

associated with movements in unemployment. Unanticipated inflation is merely

the difference between the actual inflation rate and the expected inflation

rate, and when this difference is negligible unemployment remains stable at

its natural rate. To the extent that expected and actual inflation rates are

(positively) correlated the estimate of the short run Phillips Curve is biased.

Acco-ding to this argument, the inflation-unemployment combinations depicted

in Figures 1 and 2 will reveal the true short run Phillips Curve only if ex-

pected inflation remains constant. The empirical difficulty is that the expected

inflation rate is not observed, so that this proposition is not testable as it

stands.

It is nevertheless an important issue to put to a test, as most econo-

mists accept some version of it as the major plausible explanation for the

obvious shifts in the Phillips Curves of both countries that have taken place

in the 1970's. Moreover, since expectations of inflation must surely catch

Figure 3

Canadian Unemployment - U.S. Unemployment
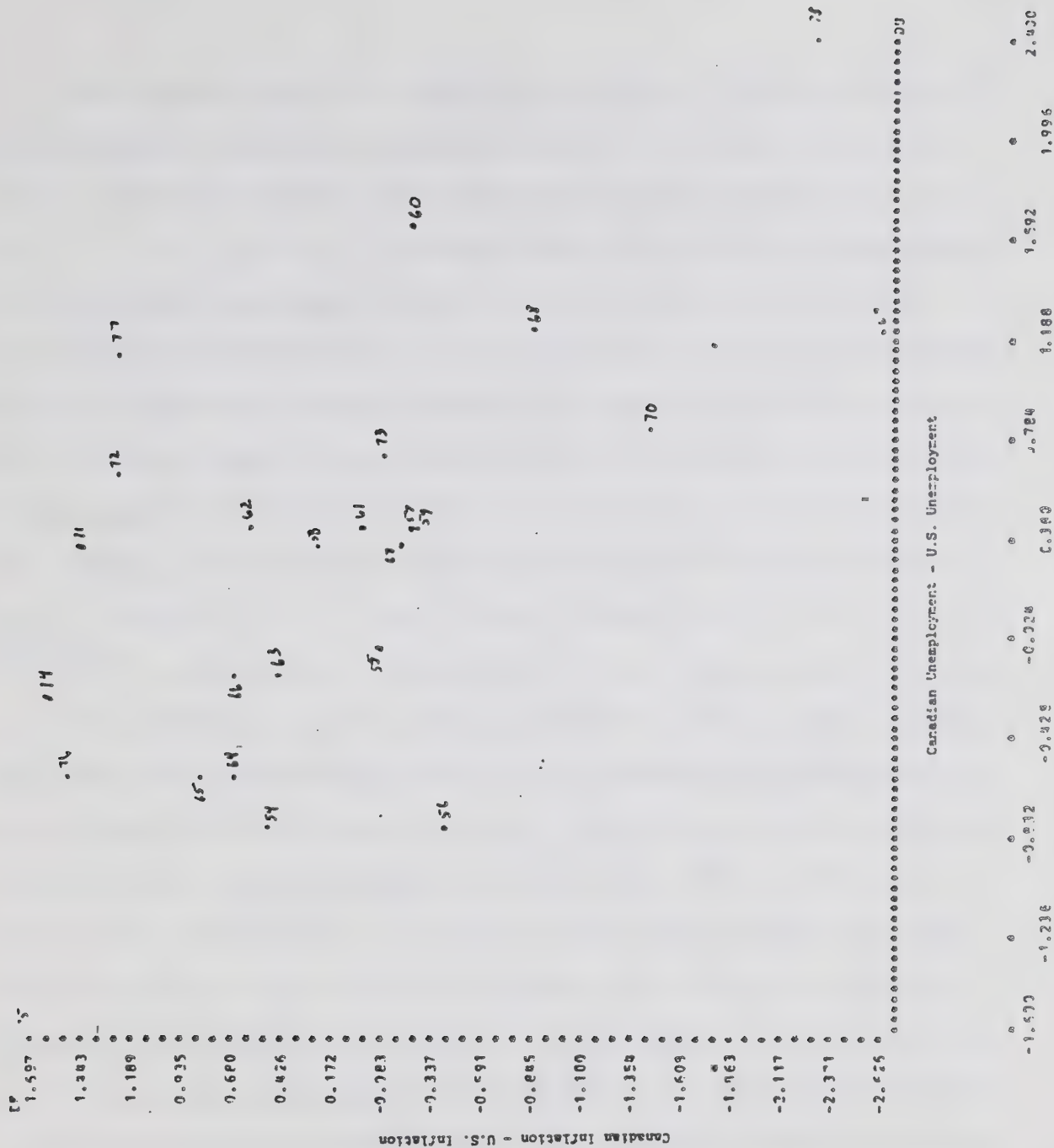
up eventually with the actual inflation rate it follows that continuous inflation of the economy must ultimately lead to unemployment near the natural rate. Permanent reductions in unemployment are therefore possible, on this hypothesis, only with accelerating inflation.

Figure 3 provides one simple test of this hypothesis that utilizes data on Canada and the U.S. simultaneously. The idea behind this test is a remarkably simple one. Suppose that, however expected inflation rates are determined in the U.S. and Canada, the methods are the same and lead to expectations that differ only slightly.[8/] It follows then that the difference between the actual inflation rates in Canada and the U.S. is a measure of the difference in unanticipated inflation rates in the two countries. According to the above argument the difference between the Canadian and U.S. unemployment rates ought therefore to be a negative function of this difference in the two country's inflation rates even if inflationary expectations are not stationary over this period. Figure 3 reveals that this is indeed the case.

The more systematic analysis in the appendix reveals that, remarkably enough, the difference between the Canadian and U.S. employment rates is a relatively stable, but loosely determined function of the difference in the Canadian and U.S. inflation rates. The results also imply that the Canadian natural rate of unemployment may have been .2 percentage points higher than the U.S. natural rate in 1966, and that this difference may have grown to around 1 percentage point by 1978. None of these estimates is very precisely determined, however, and they hardly deserve great confidence taken by themselves.

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[8/] Riddell [6] finds that a direct measure of popularly held price expectations in the U.S. is a good predictor of Canadian wage bargains, for example.

These results suggest two important conclusions. First, the argument that adjustments in inflation expectations serve as a severe constraint on employment policy is to some extent based on a reasonable interpretation of the facts. It is not surprising in view of these facts that the consensus on the desirability of a full employment goal has disintegrated as the fear that more active policies will lead to accelerating inflation has become more credible. Second, the slope of the short-run, inflation expectations constant, Phillips Curve in Table 1 is relatively steep and implies a somewhat more sanguine view about the potential role of anti-inflation policies than is customary these days. Perhaps further empirical research along these lines is justified.

Conclusion

In the immediate post-war years a consensus on a full employment goal could easily be reached because of the broad agreement that any measured level of unemployment represented wasted resources and hardship that could be eliminated by costless government policies. Today there is no longer a consensus on any of these three issues. First, it is recognized that some involuntary unemployment may be a result of efficient rather than inefficient long term labor market attachments between employers and employees. To the extent that this is the case the mere measurement of the presence of involuntary unemployment does not command immediate agreement that government action is required. Second, the heterogeneity of the labor force of the 1980's and the presence of the relatively generous public and private unemployment compensation device that did not exist during the Great Depression of the 1930's has destroyed the consensus that the unemployment rate is a measure of the actual hardship

of unemployment. Finally, the experience of the higher unemployment and inflation rates of the 1970's has cast doubts on the view that unemployment can be permanently reduced without a concurrent acceleration of the inflation rate. As a result no single full employment goal commands a consensus either.

Rather than broach these delicate issues directly governments have moved away from specific full employment goals through their actions, but not their rhetoric. The danger in this behavior is that public promises of high employment are never kept. When aggregate monetary and fiscal policies do not deliver on these promises it is inevitable that in the name of promoting full employment specific policies to prop up lame ducks and declining industries will be proposed and perhaps implemented by the groups who gain from them. A realistic and useful full employment policy must begin with an honest assessment of the actual hardship of unemployment and the recognition that any policy will be constrained by the effects it may have on inflation. Policies that assist rather than impede adjustments that are inevitable are more likely to command support if they are a clear response to the hardship of involuntary unemployment that does represent unexploited gains from trade. Each program in such a policy must be analyzed for both its costs and its effects and cannot be justified merely by an appeal to an abstract principle that has neither a logical basis nor a consensus of popular support. The result is that specific numerical aggregate unemployment goals no longer play the central role once attributed to them in the advocacy or assessment of employment policy.

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APPENDIX

This appendix reports the details of the regressions in Table 1 using the Canadian and U.S. unemployment and price inflation data. The former are annual data on the unemployment rate (in percentage points) from the respective countries (U_t) and the latter are the percentage changes in the consumer price indexes $[100(P_{t+1}-P_t)/P_t]$ from the respective countries. I have chosen to use the unemployment rates as dependent variables because the constant terms in the various equations are then direct estimates of the natural rate of un-employment (or the Canadian-U.S. difference in the natural rates).

Rows 1 and 2 show that unemployment and price inflation rates are posi-tively correlated over the period 1954-78 in both countries, but that this relationship is weak and certainly not statistically significant. Row 3 con-tains the results of a regression of the difference between the Canadian and U.S. unemployment rates on the Canadian and U.S. price inflation rates. Al-though both of these coefficients are reasonably well determined, they are nearly equal, but opposite in sign. This implies that the difference between the Canadian and U.S. unemployment rates is a negative function of the difference between the Canadian and U.S. inflation rates. In Row 4 I introduce a trend term to allow for a possible trend-like increase in the Canadian natural rate relative to the U.S. natural rate over this period in accordance with the argu-ments of a number of Canadian economists. Although this trend is estimated to be positive, it is far from statistically significant by conventional test standards. Rows 5-7 replicate these regressions on data for the period 1966-78 that many consider to be more nearly comparable between the two countries.

Table 1

Effects of Inflation Differences on Unemployment
Differences Between Canada and the U.S. 1/

Row No.	Dependent Variable	Time Period	Coefficient of (Standard error in parentheses)				R^2	Durbin Watson Statistic
			Constant	Price Inflation in Canada	Price Inflation in U.S.	Time		
1	Canadian Unemployment	1954-78	5.03 (.45)	.140 (.083)			.109	.63
2	U.S. Unemployment	1954-78	5.21 (.43)		.040 (.082)		.010	.79
3	Canadian Unemployment- U.S. Unemployment	1954-78	.047 (.222)	-.466 (.121)	.539 (.123)		.475	1.42
4	Canadian Unemployment- U.S. Unemployment	1954-78	-.182 (.300)	-.528 (.132)	.518 (.123)	.041 (.036)	.505	1.52
5	Canadian Unemployment- U.S. Unemployment	1966-78	-.065 (.516)	-.446 (.129)	.540 (.137)		.606	1.50
6	Canadian Unemployment- U.S. Unemployment	1966-78	-.278 (1.23)	-.461 (.158)	.536 (.146)	.016 (.191)	.607	1.53
7	Canadian Unemployment- U.S. Unemployment	1966-78	-.611 (1.07)	-.508 (.134)	.508 (.134)	.058 (.053)	.592	1.57

1/ The data pertain to average annual aggregate unemployment rates for both countries. The inflation rate in period t is defined as the percentage increase in the appropriate Consumers' Price Index from period $t + 1$. Sources: U.S. CPI and unemployment rate data are from the Survey of Current Business, various issues, and the Statistical Supplement to the Survey of Current Business. Canadian CPI and unemployment data are from CANSIM.

These results do not differ in any substantive way from the results for the longer period.

Finally, in row 7 I constrain the Canadian and U.S. inflation rates to have equal, but opposite effects on the Canadian/U.S. difference in unemployment rates in order to increase the precision of the estimate of any trend in the Canadian natural rate of unemployment relative to the U.S. natural rate. Although the precision is increased, this trend effect is still not significantly different from zero. The results in row 7 imply that the Canadian natural rate may have been .2 percentage points higher than the U.S. natural rate in 1966, and that this difference may have increased to around one percentage point by 1978, but, as before, these differences are very imprecisely determined.

An explanation advanced in the text for why a relationship between Canadian/U.S. differences in unemployment might be related to Canadian/U.S. differences in price inflation rates is that if price expectations are formed similarly in the U.S. and Canada, then differencing will eliminate this unobservable variable. To be concrete, if within a country we have

$$U_t = U^* - \beta(\dot{P}_t - \dot{P}_t^e),$$

where U^* is the natural rate, $\dot{P}_t$ is the inflation rate, and $\dot{P}_t^e$ is the expected inflation rate, then a positive correlation between $\dot{P}_t$ and $\dot{P}_t^e$ will result in an estimate of β that is biased toward zero. Using the superscript c to indicate Canada, and the superscript u.s. to indicate the U.S., and assuming $\dot{P}_t^e$ is the same in these two countries, it follows that

$$U_t^c - U_t^{u.s.} = (U^{*c}) - U^{*u.s.}) - \beta(\dot{P}_t^c - \dot{P}_t^{u.s.})$$

may be used to estimate β without bias. This is the rationale for fitting the equations in rows 3-7 in Table 1, although I have allowed β to differ as between the U.S. and Canada except in row 7. As my colleague James Brown has observed, however, if price expectations are formed rationally, then the difference between the price inflation rates in Canada and the U.S. should be serially uncorrelated. That is, if price expectations are rational, then $\dot{P}_t^c - \dot{P}_t^{ec} = \epsilon_t^c$ and $\dot{P}_t^{u.s.} - \dot{P}^{eu.s.} = \epsilon_t^{u.s.}$ are each white noise. If, further, price expectations are equal in the U.S. and Canada, then $\dot{P}_t^c - \dot{P}_t^{u.s.} = \epsilon_t^c - \epsilon_t^{u.s.}$ is also white noise. In fact, however, the difference $\dot{P}_t^c - \dot{P}_t^{u.s.}$ is positively serially correlated. Over the period 1955-78 the first-order serial correlation coefficient in this series is .44 (with estimated standard error of .22) and significantly different from zero. In the period 1954-1965 this coefficient is .65 (.30) and also significant, while in the period 1966-78 it is .44 (.32) and not statistically significant. This suggests either that price expectations are not formed rationally or that price expectations did not move identically in these two countries over these years or both. In either case these data might usefully contain information worth further research, but, in any event, the results for the period 1966-78 seem worth more confidence.